Weather and Climate

Western Arctic Parklands Winter 2012-2013 Weather Summary

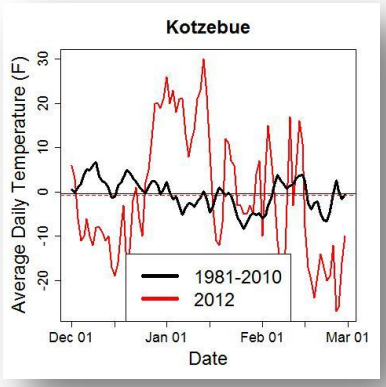
What is Normal?

"Normals" are used to place recent climate conditions into historical context. It takes 30 years of continuous weather data at one location to calculate what makes temperature or precipitation amounts "normal". The latest normal period is 1981-2010.

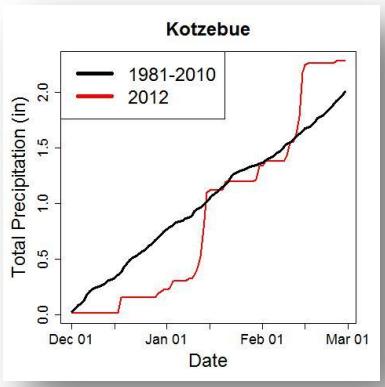
The weather station in Kotzebue has been in operation since 1897, and while the records in the early days were spotty, the record for the past 60+ years is solid. Kotzebue is a good index site to use for climate comparisons in the Arctic parks.

In Kotzebue, winter started out cold and dry. The average temperature for December was 5.4° F cooler than normal. There were only 5 days of measureable precipitation totaling to 28% of normal for the month. In combination with a warm October and dry November, only 2 inches of snow had accumulated by the end of December. The temperatures warmed in January with an average monthly temperature of 8.7° F, 11.5° F above the 1981-2010 normal. The National Weather Service reported 1.12 inches of precipitation in January including a freezing rain event on January 13. The month ended up at 180% of normal precipitation. Record precipitation amounts were measured over two separate 24-hour periods: 0.25 inches on January 13 (previous record 0.24 inches in 2000), and 0.12 inches on January 31 (previous record 0.10 inches in 2007). Cold temperatures returned in February and the month was 7.4° F colder than normal. Precipitation was 142% of normal for February and 112% of normal for the winter season. However, due to dry early winter conditions, snowfall since July 1 is only 56% of normal and snow depth at the end of February is about half of normal.

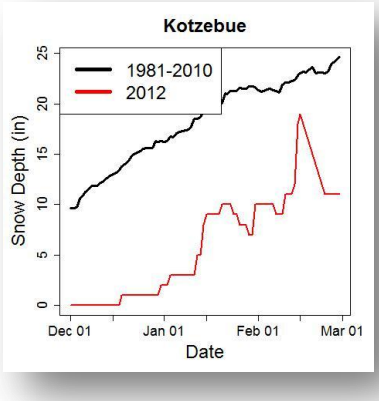
Kotzebue – Average Air Temperatures



Kotzebue – Cumulative Precipitation



Kotzebue – Cumulative Snow Depth



Kotzebue Weather Records:
Climate Normal Period 1981 – 2010
Climate Record Period 1897 – 2013

Temperature

Winter 2012 – 2013	Average Monthly Temp °F	1981-2010 Normal °F	Departure from Normal °F	Monthly High °F / Date	Monthly Low °F / Date
December	-3.1	2.3	-5.4	23 / Dec 31	-25 / Dec 15
January	8.7	-2.8	+11.5	35 / Jan 13	-22 / Jan 19
February	-8.2	-0.8	-7.4	24 / Feb 10	-39 / Feb 26

Winter Season Temperature Departure from Normal: -0.4°F

Precipitation

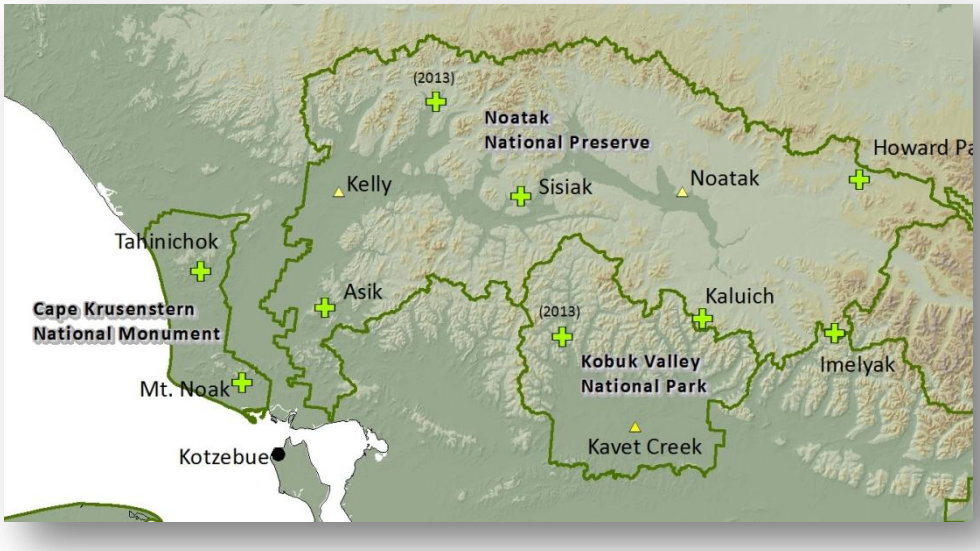
Winter 2012 - 2013	Total Monthly Precip in.	1981-2010 Normal in.	Departure from Normal in.	Greatest 24–hr total in. / Date	# Days with >=0.01 in.Water
December	0.22	0.76	-0.54	0.14 / Dec 17	5
January	1.12	0.62	+0.50	0.46 / Jan 14	12
February	0.94	0.66	+0.27	0.40 / Feb 14	9

Winter Season Precipitation Departure from Normal: +0.24 inches

Snowfall

Winter 2012 – 2013	Total Monthly Snowfall in.	1981-2010 Normal in.	Departure from Normal in.	Greatest 24 – hr snowfall total in. / Date	Cumulative since 1-July in.	Normal Snowfall from July 1 in.
December	2.5	11.5	-9.0	1.4 / Dec 17	4.7	26.1
January	10.8	9.1	+1.7	3.3 / Jan 14	15.5	35.2
February	9.4	9.6	-0.2	4.0 / Feb 14	24.9	44.8

We now have additional NPS climate stations in Cape Krusenstern, Noatak, and Kobuk Valley that complement existing National Weather Service stations at Kotzebue and along the Kobuk River to the south. The new NPS stations will provide critical data on high elevation sites in the Arctic and will help characterize the climate gradients and patterns affecting resources in the Western Arctic parklands.



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Arctic Network Remote Automated Weather Station (RAWS) summaries - Winter 2012-13:

Park	Site	Avg Temp °F Dec	Jan	Sep Feb	Winter Avg Temp °F	Extremes °F High	Low	Snow Depth in.*	Peak Wind mph	Elev. ft.	High T - Low T °F **
CAKR	Mt. Noak	0.0	9.4	-1.4	2.7	29	-23	1	36	809	52
	Tahinichok	-1	7.5	-1.8	1.6	30	-22	2	55	966	52
NOAT	Asik	1.7	9.6	1.1	4.1	28	-18	2	54	1329	46
	Kelly	-6	7.3	-2.1	-0.3	34	-32	9	39	382	66
	Sisiak	-5.8	4.5	-6.2	-2.5	26	-32	1	51	1823	58
	Noatak	-19.3	-5.1	-14.7	-13.0	30	-43	***	49	985	73
	Kaluich	-11.2	-0.3	-14.6	-8.7	29	-40	9	49	2486	69
	Imelyak	1.2	5.3	1.8	2.8	26	-28	m	60	3569	54
KOVA	Kavet Creek	-10.3	6.8	-2.9	-2.1	11.8	-37	***	45	235	49

* Snow depth on February 28th; ** Difference between the high and low temperature for the season; ***snow not measured at this site

Interesting notes from RAWS stations:

- At the lower elevation sites the difference between the low temperature and the high temperature for the season averaged over 60 deg F.
- The highest temperature of 34°F, was recorded at the Kelly RAWS at the confluence of the Kelly and Noatak Rivers. The lowest temperature of -43 deg F was recorded near Makpik Creek at the Noatak RAWS in the Upper Noatak Valley.
- Although January is typically the coldest month, it was the warmest month for all RAWS stations for the December-February season.

Asik climate station in Noatak

Please Note: The summarized data are preliminary and have not undergone final quality control. Therefore, these data are subject to revision.

Connecting Further

ARCN Weather and Climate Resource Brief

Access near real-time data from Western Regional Climate Center and MesoWest

Check out the 3 month weather outlook from the NOAA Climate Prediction Center

Statewide summary of weather highlights in the latest Climate Dispatch from the Alaska Center for Climate Assessment and Policy

Maps of projected temperature and precipitation changes for the WEAR parks.

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